



Acoustics

Sheet (3)

- 1- A 440-Hz tuning fork is held above a closed pipe. Find the spacing between the resonances when the air temperature is 20°C . (Note: the speed of sound in air at 20°C is 343 m/s).
- 2- A 440-Hz tuning fork is used with a resonating column to determine the velocity of sound in helium gas. If the spacing between resonances are 110 cm, what is the velocity of helium gas?
- 3- The frequency of a tuning fork is unknown. A student uses an air column at 27°C and finds resonances spaced by 20.2 cm. What is the frequency of the tuning fork? (Note: the speed of sound in air at 0°C is 331m/s).
- 4- A bugle can be thought of as an open pipe. If a bugle were straightened out, it would be 2.65 m long
 - a. If the speed of sound is 343m/s, find the lowest frequency that is resonant for a bugle (ignoring end corrections)
 - b. Find the next two resonant frequencies for the bugle.